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THE VETERINARY JOURNAL

A Monthly Review of Veterinary Science.

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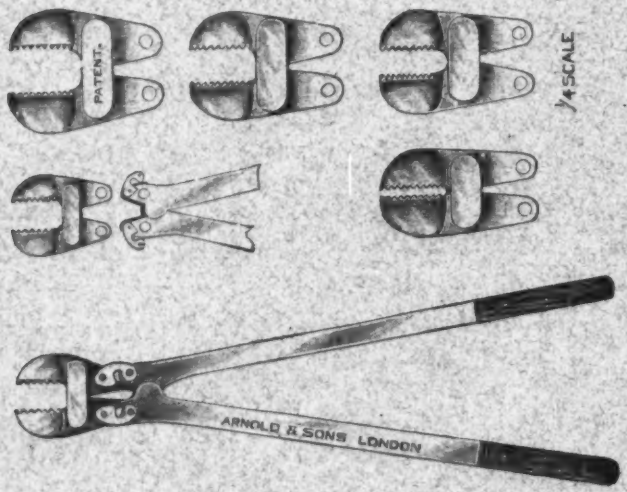

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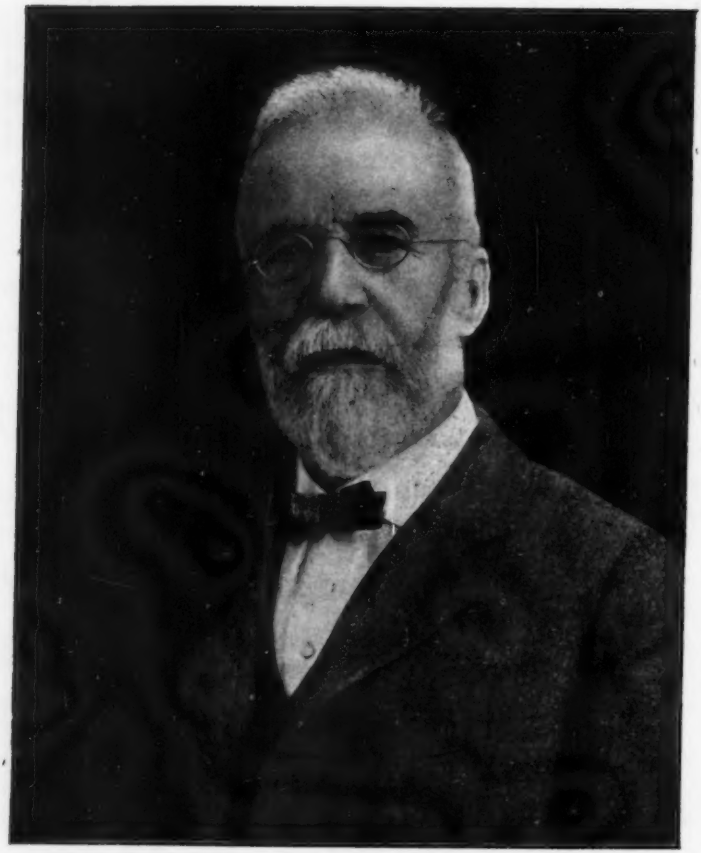

MR. LACHLAN McLEAN, M.R.C.V.S.

One of the Founders (and formerly President) of the American Veterinary Medical Association.

THE

VETERINARY JOURNAL

MAY, 1913.

Editorial.

THE ANIMALS (ANÆSTHETICS) BILL.

The Animals (Anæsthetics) Bill brought before Parliament last year by Mr. Walter Guinness was withdrawn. It had the appearance of having been drawn up somewhat hurriedly and without full consideration of the operations for which general anæsthetics were to be made compulsory. For example, it was sought to enforce the use of a general anæsthetic for the extraction of molar teeth in horses, whereas most of us are aware that to comply with that would have been to expose the horse to grave risk of death from choking with blood, or to pneumonia as the result of the aspiration of blood into the lungs during the operation. On the other hand, the extraction of a molar tooth is by far the most frequently required in old horses, the casting of which would be fraught with danger to the back, while in such cases it is frequently a very easy matter to extract the offending molar in the standing position. Veterinary surgeons, although desirous of using anæsthetics in all painful operations, were unable to support the Bill on account of such items, while agriculturists found that the Bill would inflict great and unnecessary hardships on them, and it is certain that the Bill could not possibly have passed in its original form.

Consequently, it has been amended in very important particulars, and has again been presented to Parliament and read the first time. It is reproduced on pp. 244-5 of this Journal. In its

new form we welcome it, and if it becomes law we are sure that its provisions will be very heartily carried out by the veterinary profession. We know full well that all the operations named in the three schedules and others besides would almost invariably be performed under anæsthesia if the veterinary surgeon were able to please himself. Unfortunately, however, the owner of the patient frequently refuses to pay for it, and as the veterinary surgeon is dependent upon fees for his livelihood he cannot afford the additional time and expenditure without compensation. He has consequently either to perform the operation without the anæsthetic, or by refusing allow it to be done, with the probable infliction of greater pain, by a quack, and run the risk of offending and losing a client.

There would appear also to be every prospect of agriculturists being satisfied by the Bill in its new form, for we believe that the Animals' Diseases Committee of the Central Chamber of Agriculture have considered the matter, and have no objection to it. Moreover, we note that it has been backed amongst others by Mr. Courthope, an ex-Chairman of the Central Chamber of Agriculture. An important alteration has been made in reference to the castration of colts, and the Bill does not ask for an anæsthetic for castrating horses under 2 years old. This is a concession to a very widely held opinion, and will permit the continuance of the practice of castrating colts standing. On the true humanitarian aspect such a concession should not have been made, but it is certainly better policy to make it than to risk the loss of the Bill as a whole. The word "radical" has been prefixed to operations for quittor, and poll-evil, and this we consider a great improvement. Without it any operation for quittor, such as the insertion of caustic plugs, would have necessitated a general anæsthetic, an obvious absurdity.

There are several additions to the schedules, however, which might be made with advantage. We consider that in horses the stripping of the wall of the hoof, or a part of it, should necessitate the use of an anæsthetic, as well as stripping of the sole. A general anæsthetic should be prescribed for any operation involving laparotomy in any animal, while the excision of tumours should always be done under the influence of an anæsthetic either local or general.

There is no reference to the vexed question of docking. In

our opinion the practice of chopping off portions of the tails of certain breeds of dogs and of horses, with the possible exception of hackneys and light trappers, is absolutely indefensible as a routine practice. There are certain occasions when it must certainly be done, and when it is necessary it should be done under the influence of either an anæsthetic or a narcotic.

The compulsory use of a general anæsthetic, however, for any scheduled list of operations is inadvisable unless a clause is inserted allowing the veterinary surgeon to use his discretion in certain physical conditions of the patient. There are numerous instances where it would be dangerous to the life of the animal either to cast for an anæsthetic or to administer an anæsthetic. A clause should therefore be added to allow a veterinary surgeon to use his discretion in those cases where the administration of a general anæsthetic would be dangerous or prejudicial to the life of the patient, as, for example, the casting of an aged horse with an anchylosed spine, for firing, or other purposes. It is possible, however, that chloral hydrate, as permitted by the Bill, may be used with safety in such cases.

On the whole, then, we hope that the Bill will become law, for it will reduce the sum total of pain and suffering on the part of our four-footed friends.

IN AID OF THE VICTORIA VETERINARY BENEVOLENT FUND.

An amateur performance of the domestic drama, "Sweet Lavender," by Arthur W. Pinero, will be given at the Town Hall, Maidenhead, on Wednesday, May 7, and Thursday, May 8, 1913. Doors open each evening at 7.30, commence at 8 p.m. Carriages at 10.15 p.m. Matinée on Thursday, 2.30 p.m. Doors open at 2. Carriages 4.45. Reserved seats, 3s., 2s., and 1s., may be booked at Messrs. Dyson and Sons' Music Establishment, High Street, Maidenhead.

Any offers of help in the disposal of tickets will be gratefully received by Percy J. Simpson, F.R.C.V.S., Maidenhead, who will also be pleased to book seats on receipt of cheque or postal order for the number of tickets required.

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,, depart Maidenhead	4.40	6.2	10.16	11.3
,, arrive Paddington	5.14	6.38	11.47	11.50

General Articles.

MEMBERS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS WHO HAVE BEEN MAKERS OF AMERICAN VETERINARY HISTORY.—A POSTCRIPT.

By D. ARTHUR HUGHES.

Litt.M., Ph.D.(Cornell University), D.V.M. (New York State Veterinary College), Professor of Milk Hygiene, Chicago Veterinary College, &c.

A YEAR ago the author, as the reader knows, wrote a series of articles for THE VETERINARY JOURNAL on some members of the Royal College of Veterinary Surgeons who have achieved national distinction in comparative medicine in the United States of America. If he had not been afraid of running the chance of wearying the reader by dwelling too long on *biographia veterinaria*, because of prolixity, much more might have been written upon other noble names. That would be a country not far advanced in knowledge of modern medicine which did not have in its midst men successful in the application of the principles of veterinary science to the needs of its domesticated animals, or devotees of some forms of veterinary thought or work. Wherever veterinary medicine is to be successfully taught, or successfully practised, there members of the Royal College of Veterinary Surgeons are to be found. Where relief is to be brought to suffering dumb creation; where there is a demand for picked scholars to engage at important posts in the teaching of veterinary science as "makers of men," to use the fine phrase of the Liverpool poet, William Watson, at such times Royal College men have not been found wanting. It would appear that the British training of veterinarians smacks of the ideal of the Clerk of Oxenford epitomized in the prologue of Chaucer's "Canterbury Tales," and inculcates this doctrine of the proper attitude of each scholar to the other: "And gladly wolde he lerne, and gladly teche." In pointing out the achievements of some British-trained men in the United States the object was not to disparage the work of similar men in other countries. What Professor O. Charnock Bradley said for the Royal (Dick) Veterinary College, Edinburgh, when he spoke of the renowned men in Great Britain who had come from that College, probably might be said for other veterinary colleges in Great Britain. Similarly

what was said of some of the members of the Royal College in America might also be said of other countries in the Anglo-Saxon world.

If the present writer may be pardoned for the statement, he would here express his thanks for the many commendations on his articles, coming from many quarters of the globe. They happily were, apparently, well received everywhere where they were read. The main objection seems to have been that many more men might have been mentioned than those whose names appeared. But every piece of work of mortal man must have its limitations, and every series of articles must have its confines. We were speaking of representative members of the Royal College of Veterinary Surgeons who have been makers of American veterinary history. It is possible by much speaking to run to the very fringe of boredom, and, by delivering oneself up to turgidity, to try even the man with Job's patience. But every piece of good work is self-justified. If the series written was beneficial, that carries with it its own satisfaction. For biographical writing is an inspiration, and its aroma permeates the printed page. To him who falters in his ambitions the advice to be given is: Read the lives of great men who sacrificed much in the temple of truth. The loftiness of their work; the ardour with which they pursued their ambitions; their abandon to the subject of their devotion, will fire anew the laggard and dissipate unworthy purposes. Several years ago a noted American publishing house printed a book under the caption "Makers of Biology," in which were inscribed the deeds of celebrated biologists. It seems to me that the makers of veterinary science in all countries who have contributed to the foundations of our profession as investigators, clinicians or teachers, are worthy of similar encomium; not in fulsome or empty phrases, rather in terms of truth should their merits be spread upon our records for the stimulation of men in our day and those who come after us.

When the last series of biographical sketches was running in THE VETERINARY JOURNAL the Editor was good enough, in mentioning the articles, to refer to the benefits which would accrue to those who took post-graduate study after receiving membership in the Royal College. In very truth the rewards of such study are great. Highly successful men are those who

have not confined their student days to those before they acquired the rights of membership in the profession; but those whose whole life has been a toil upward, and still upward to the light. The broadening of the intellectual vision, referred to by the Editor, by occupation in post-graduate studies, is something devoutly to be striven for. The degree of success won by those who did have the benefits of post-graduate study only suggests a greater success to be obtained from that study. It is something which has been in operation at the University of Giessen in Germany and the University of Berne in Switzerland, where the degree of Doctor of Veterinary Medicine could be obtained, and was obtained by a few, after higher studies in veterinary science, the writing of a thesis and its defence, and the doctorate examinations before the University faculty. And this has, by decree of Emperor William, been recently inaugurated in the State veterinary schools of Prussia. In standing for post-graduate studies in veterinary science the Editor was not only true to his convictions, but true to the natural order of things. The increase of a man's knowledge means the increase of his usefulness, which is something for which all are striving. Studies of the careers of successful veterinarians in every instance emphasize the fact. They may not have had post-graduate studies *in cursu;* nevertheless their lives show that their success was due to their zealous and passionate intellectual labour, which became more ardent with the years, and that a better preparation for the turmoil would have increased their scope and grasp of veterinary problems. Men too frequently do not arrive on the higher planes of intellectual endeavour on account of inadequacy of training. "Wisdom is justified in her children," because the product is the outcome of fulness of knowledge obtained beforehand. For, as Robert Browning says in "A Grammarian's Funeral":—

> "Oh, if we draw a circle premature,
> Heedless of far gain;
> Greedy for quick returns of profit, sure
> Bad is our bargain."

Such tenets as this, which is the dictum of one of the greatest of the Victorian writers, which contains the increments of success, are borne out in the acts of the luminaries of our profession and in the results of their work. Any group of distinguished veter-

inarians in any country illustrates the truths propounded. Students of the higher learning in a direct or an indirect way, in post-graduate studies or otherwise, exemplify the doctrine that too engrossing an anxiety for immediate financial profit blinds the eyes to the greater gains to be had from closer application to deeper studies. It is to be seen in the career of the man I am desirous of mentioning in this article—a man whom numerous persons, on both sides of the Atlantic, have besought me to make the subject of a special article, I refer to Lachlan McLean, M.R.C.V.S., of Brooklyn, New York.

Lachlan McLean, M.R.C.V.S.

In September of this year the American Veterinary Medical Association will celebrate the fiftieth anniversary of its existence. Originally organized in the city of New York, it returns to New York for the celebration. Of two things the American Veterinarian with progressive leanings is proud: (*a*) the birth and steady growth of the American Veterinary Medical Association, now fast approaching a membership of two thousand men, with its wholesome influence on veterinary education and veterinary tendencies, and (*b*) the establishment of the Bureau of Animal Industry, United States Department of Agriculture, and the expansion of its power. It is to Mr. McLean's credit that he had a strong hand in both. This venerable gentleman, who, if he lives until January 22, 1913,* will be eighty-three years old, and is still in active practice, has given a long life to professional advance in the United States as an educator, a sanitarian, and as a clinician. He belongs to that group of renowned New York veterinarians who inaugurated collegiate veterinary training in this country, who paved the way for the establishment of the present national control of animal infections, and who built up a large practice in the heyday of the horse in rich cosmopolitan New York. He associated himself with Dr. Liautard, became a member of the first veterinary medical faculty in New York, and was one of the early presidents of what was the precursor of the American Veterinary Medical Association. His work as a diagnostician in determining the presence of pleuro-pneumonia in cattle in 1879 argued for the need of a National Bureau for the control of animal infections.

* [This article was written for the January issue, but was unavoidably held over until the present one.—Ed. *V. J.*]

Lachlan McLean was born in Inverness, Scotland, in 1832, the son of Roderick and Marjorie (Patterson) McLean. He graduated at the Royal Veterinary College, Edinburgh, in 1854, and received membership in the Royal College of Veterinary Surgeons. For a time he practised in his native county, and was appointed Government Veterinary Inspector in Inverness. Although very successful in Scotland, he sought greater opportunities by emigrating to the United States in 1875. He settled in Brooklyn, New York, and has made his home there ever since. In October, 1878, McLean was appointed Veterinary Inspector for the Brooklyn Board of Health, the first official veterinary appointment connected with a Board of Health in America. He was also the first Professor of Bovine Pathology in America, holding the position for six years in the first veterinary school established by Dr. Liautard in New York. Later he was veterinary expert for the national Government in New Mexico and the western States.

But his most important work, according to a sketch of McLean's life in the "History of Long Island," which made him at the time a national figure, was the detection of the presence of contagious bovine pleuro-pneumonia in the United States and its demonstration beyond cavil. He was the first—January, 1879, through the local Board of Health of Brooklyn—to draw the attention of Governor Robertson, of New York, to the presence of the disease on Long Island. His diagnosis was disputed; but, after several *post-mortems* on suspected animals, his judgment was sustained. Under his inspection, under the direction of General Patrick, who was appointed by the Governor, several thousands of animals were slaughtered. Thus he was enabled to effectually stamp out the disease from that section of New York eight years before the United States Government took hold of the total suppression of the disease under the leadership of Dr. James Law, beginning at the Union Stock Yards, Chicago, Illinois. Dr. McEachran, formerly head of the Veterinary Department of McGill University, Montreal, gives credit to McLean for this work, and, as cited in Walley's "Four Bovine Scourges," quotes letters from him in which the true diagnosis is set forth and request made that the Washington authorities should be incited to take the matter of extirpation in hand. The work of McLean in this matter was the harbinger of a better day for live-stock work; as, in 1887, the United States Government

took the matter up in earnest and the disease was stamped out, never, it is to be hoped, to return. The records of the United States Department of Agriculture show that the presence of contagious pleuro-pneumonia in the United States, and the alarm that it caused amongst cattle-men, was the immediate forerunner of the foundation of the United States Bureau of Animal Industry in 1884. The work that McLean did as a diagnostician of the disease in 1879, therefore, honourably links his name in the chain of events which led up to the establishment. This was of the greatest import to American veterinary affairs, for the United States Bureau of Animal Industry has since developed so extraordinarily as to-day to be considered one of the most valuable departments of the American Government.

There are not many of the early presidents, like Liautard and McLean, of what is now the American Veterinary Medical Association still living. Yet those who remain should be the recipients of the greater honours in the celebration of the fiftieth anniversary of the Association in New York City next September. The event should be of more than passing interest to English-speaking veterinarians all around the world. Members of the Royal College of Veterinary Surgeons have been makers of American veterinary history, and such an one is Lachlan McLean. International comity amongst veterinarians, under these circumstances, especially amongst veterinarians of the highest type such as those referred to in this article, calls for a recognition of international obligations. To the Royal College of Veterinary Surgeons we owe much, and we hope, like a daughter with true filial regard for her mother, to receive all that belongs to a parental blessing from our co-labourers of the Motherland when we enter upon our celebration. The pleasure which we had in extending to Professor Hobday the courtesies of the National veterinary body when he visited us in Toronto a year and a half ago will be more than matched should distinguished British veterinarians visit our shores next September. The International Veterinary Congress is to meet in London in 1914. Here surely is an occasion for felicitous reciprocity. All America looked with satisfaction upon that delicate sense of gentility, that national cordiality, that finesse exhibited by the British Government when full military and naval honours were paid to the memory of the United States Ambassador to the Court of St. James's, Whitelaw Reid, in his recent death. To us, the living, this is but a symbol of that

amity, that unity, that racial harmony, which should and does prevail in the two nations, which are one people. The tie that binds us in unity, peace, and concord, to use the words of the Litany of the Church of England, should embrace veterinarians in the British Isles and America. There might with profit be more commingling of members of the profession from one side of the Atlantic to the other. Travel is an antidote for insularity on the one hand, and for braggadocio on the other. The man with the tincture of cosmopolitanism is usually the man with worldly wisdom. If we are willing to meet you at Charing Cross or Euston Stations, London, you should be willing to walk with us on Broadway, New York. It is all one with us that you were bred on the eastern and we on the western side of the ocean. Blood is thicker than water, and you are our kith and kin. The obligation of each to each has best been expressed in the words of the uncrowned laureate of Greater England:—

"Those that have stayed at thy knees, Mother, go call them in—
We that were bred overseas wait and would speak with our kin.
Not in the dark do we fight, haggle, and flout and jibe;
Selling our love for a price, waning our hearts for a bribe.
Gifts have we only to-day—Love without promise or fee—
Hear, for thy children speak, from the uttermost parts of the sea!"

SOME OBSERVATIONS ON THE DIFFERENT STRAINS OF BOVINE PLASMOSES IN SOUTH AFRICA AND THE IMMUNITY CONFERRED BY THEM IN SOUTHERN RHODESIA.

By Lt. E. W. BEVAN, M.R.C.V.S.
Government Veterinary Bacteriologist, Southern Rhodesia.

During the year 1911, forty-eight animals, chiefly bulls of the Sussex, Hereford, Shorthorn, and Aberdeen-Angus varieties, were inoculated at Latombo Camp against the bovine plasmoses with virus supplied by Dr. Theiler's Laboratory, which contained the parasite of redwater—*Bacillus bigeminum*—and that known as *Anaplasma centrale*, which was held to confer immunity against *A. marginale*—the causal organism of gall-sickness.

The following table shows the fate of thirty-eight of these

animals since delivery to farmers residing in various parts of Southern Rhodesia:—

ANIMALS FROM GREAT BRITAIN INOCULATED WITH PRETORIA VIRUS AT LATOMBO CAMP DURING JULY TO NOVEMBER, 1911.

Total inoculated	Reports received	Deaths		Relapses with recovery
		At Camp	Since distribution	
48	38	Nil.	11	8

ANIMALS FROM GREAT BRITAIN INOCULATED WITH PRETORIA AND LATER WITH LOCAL VIRUS AT LATOMBO CAMP DURING JULY TO NOVEMBER, 1911.

Total inoculated	Reports received	Deaths		Relapses with recovery
		At Camp	Since distribution	
10	5	2	Nil.	Nil.

The above figures would indicate that the Pretoria virus does not render the animal completely immune against natural infection in Rhodesia.

This was to some extent foreseen, inasmuch as Dr. Theiler had previously found that "a recovery from infection with *A. centrale* does not cause complete immunity. Moreover, it has been shown not only in South Africa but in other parts of the world that the virulence of these micro-organisms and immunity to them may vary in different districts.

It remained, therefore, to determine whether the virus from the animal from Onderstepoorte Laboratory had died out; whether it had lost its power of conferring immunity; whether it conferred immunity against local strains of virus; whether it was not desirable to fortify animals immunized with this virus against a polyvalent strain before submitting them to natural infection; and whether the breakdown of immunized animals was due to infection with *A. marginale* alone or other complicating causes.

Although cattle from Great Britain inoculated with Pretoria virus in July to November, 1911, showed marked reactions, it was found that the virus had become markedly attenuated if not inert.

During the past year several consignments of cattle, having been received from the Union Provinces of South Africa, received viruses of different origin, and reacted in different ways, as may be seen from the accompanying table (p. 210).

These results are interesting and of local importance inasmuch as it would indicate that the term "non-redwater-veld" is somewhat misleading.

RESULTS OF THE INOCULATION OF CATTLE EX PROVINCES OF THE UNION OF SOUTH AFRICA WITH DIFFERENT VIRUSES.

Animal	District	Date	Virus	Result	
				Piropl.	Anapl.
Ayrshire bull ...	Sir Lowry Pass, Cape Town	Dec., 1911	Pretoria ...	X (?)	—
		Jan., 1912	Local ...	—	X
Half-bred Shorthorn Africander heifer	Cradock	Feb., 1912	Pretoria ...	—	—
,,	,,	March, 1912	Local ...	X	X
,,	,,	,,	N.W.R. ...	X	X
Half-bred Friesland heifer	Beaufort West	April, 1912	Pretoria ...	—	—
,,	,,	,,	Local ...	X	—
,,	,,	,,	Local through Angoni calf	X	—
,,	,,	,,	N. W. R. through Cradock heifer	X	—
Shorthorn bull ...	Middelburg, Cape Colony	June, 1912	Local ...	X	—
Red-poll bull ...	Petriesberg O.F.S.	,,	Local ...	X	XX

N.W.R. (North-West Rhodesian). — (No reaction). X (Slight reaction).
XX (Marked reaction). X (?) (Doubtful reaction).

Experiments were also conducted to determine whether the redwater of Northern Rhodesia was identical with that of Southern Rhodesia, two young bulls being received from the Livingstone district for this purpose.

The results show a close relationship between the two viruses, which is in accordance with practical observations in the field.

TABLE SHOWING THE REACTIONS PRODUCED IN CATTLE FROM VARIOUS SOURCES INOCULATED WITH VIRUS FROM NORTH-WEST RHODESIA.

Animal	District	Date	Virus	Result	
				Piropl.	Anapl.
Half-bred Shorthorn Africander heifer	Cradock	April, 1912	N.W.R. ...	X	X
Half-bred Friesland heifer	Beaufort West	,,	,,	X	X (?)
Half-bred Shorthorn Africander heifers	Cradock	Feb., 1912	(1) Pretoria	—	—
		April, 1912	(2) N.W.R.	X	X
,,	,,	Feb., 1912	(1) Local ...	X	X
		April, 1912	(2) N.W.R.	—	—
,,	,,	Feb., 1912	(1) Pretoria	X	X (?)
		March, 1912	(2) Local ...	X	X
		April, 1912	(3) N.W.R.	—	—
Bull	N.W.R.	April, 1912	Local ..	—	—

X (Reaction). X (?) (Doubtful reaction). — (No reaction)

The Pretoria virus having been found not to confer complete immunity to imported cattle exposed to natural infection in Southern Rhodesia, it was considered desirable to again make use of an attenuated local virus previously employed at the Laboratory with very fair results.

It was considered better that the animals should suffer from the diseases whilst under veterinary supervision than unexpectedly after distribution, when in all probability at a distance from professional assistance.

During the year 1912-13, seventy-seven animals from the Southern Colonies and sixty-eight from Great Britain were successfully immunized. Twenty-five home-bred animals died, but their owners had been previously warned that such stock was unsuitable for inoculation on account of age, soft condition, pregnancy, or in-breeding; it having been found that the age limit of safety is under 18 months, that adipose tissue is a very serious disadvantage, and that pregnancy constitutes a grave danger. In-breeding for type or show purposes undoubtedly reduces vigour and vitality; rough hardy pasture-fed animals having proved themselves the most suitable subjects for inoculation.

It is obvious that the ideal system to adopt would be to have home-bred animals intended for Rhodesia inoculated in Great Britain at a time when they could best resist the reactions, and, having recovered, could grow out on home pastures to the best advantage, so arriving in Rhodesia ready for use.

A system does already exist whereby animals can be inoculated against redwater, and a consignment of twenty-five such treated animals, made up of Sussex and Aberdeen-Angus bulls and heifers, was received during the year by Messrs. Liebig Co., Ltd., for their Mazunga ranch.

On the record supplied by Sir Stewart Stockman, Chief Veterinary Surgeon of the Board of Agriculture and Fisheries, it was shown that each of these animals had suffered from a definite redwater reaction more or less severe, but on arrival, having been inoculated with a Rhodesian combined virus, all of them except two reacted to redwater and anaplasmosis; from which it would appear that the strain of redwater employed in Great Britain does not convey complete immunity against Rhodesian strains, and is of very little practical value in this country.

Disappointing results have attended the use of *trypan-blue* which, while controlling redwater, appears to produce a condition unfavourable to recovery from the anaplasmosis which follows. It is especially harmful in pregnant animals.

COMPARATIVE ANATOMY OF SUPERNUMERARY DIGITS IN CERTAIN UNGULATES AS EVIDENCE OF THE INTER-RELATIONSHIP EXISTING BETWEEN THE VARIOUS SPECIES.

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University of Liverpool.

THIRD ARTICLE.*

CASE V.

In the following case the specimen was the manus of a medium-sized pig. It belonged to the left limb. In general appearance the manus was much deformed, for there was a considerable bend at the metacarpo-phalangeal joint. There were, however, three perfectly formed digits, each clothed by a separate fold of the integument from the proximal end of the first phalanx downwards. All three digits reached the ground and were weight-bearing.

The Tendons.—The skin having been removed, the tendon of the extensor communis digitorum was found to split into three portions, and each was attached to the terminal phalanx of one of the three digits. A proper extensor tendon was attached to each of the external digits, but the middle digit had no such tendon.

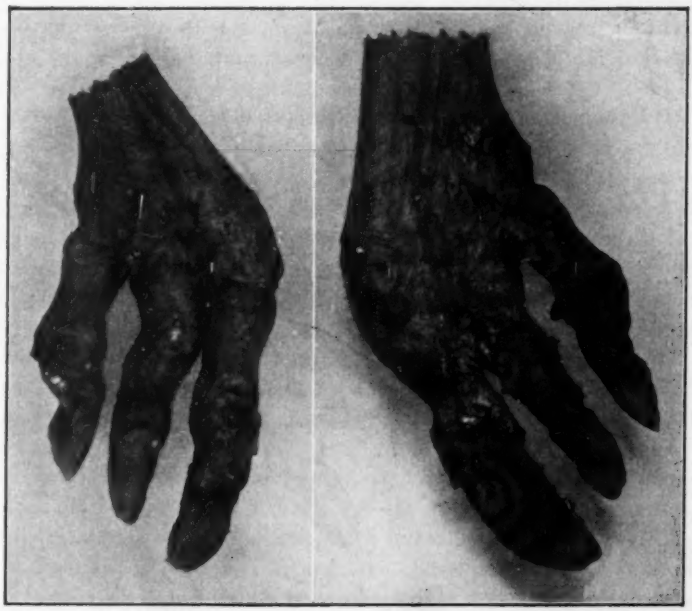
Similarly there were three divisions of the tendons of the superficial and deep flexors, and each of these had the usual insertion.

The Bones.—The most external of the three metacarpal bones (Case V, Fig. II, 1) was much the best developed. Its superior extremity extended to a higher level. The distal epiphyses of all three metacarpals were somewhat six-sided, and the lines of demarcation between them and the diaphyses were still distinctly marked. Their inferior surfaces were curved.

There was nothing remarkable about the first phalanges of

* The first and second articles of this series were published in THE VETERINARY JOURNAL for March, 1911, and June, 1911, respectively.

the two outermost digits, but in the case of the innermost digit, although the line of division between the first and second phalanges (Case V, Fig. II, 4 and 5) was well marked on the exterior, both phalanges were firmly ossified, so that the first inter-phalangeal joint in this digit was completely obliterated for some reason for which it appears difficult to offer an explanation. Ossification appeared to be the more complete on the posterior aspect of the bones where the line of division between them was much less apparent. The portion representing the first phalanx

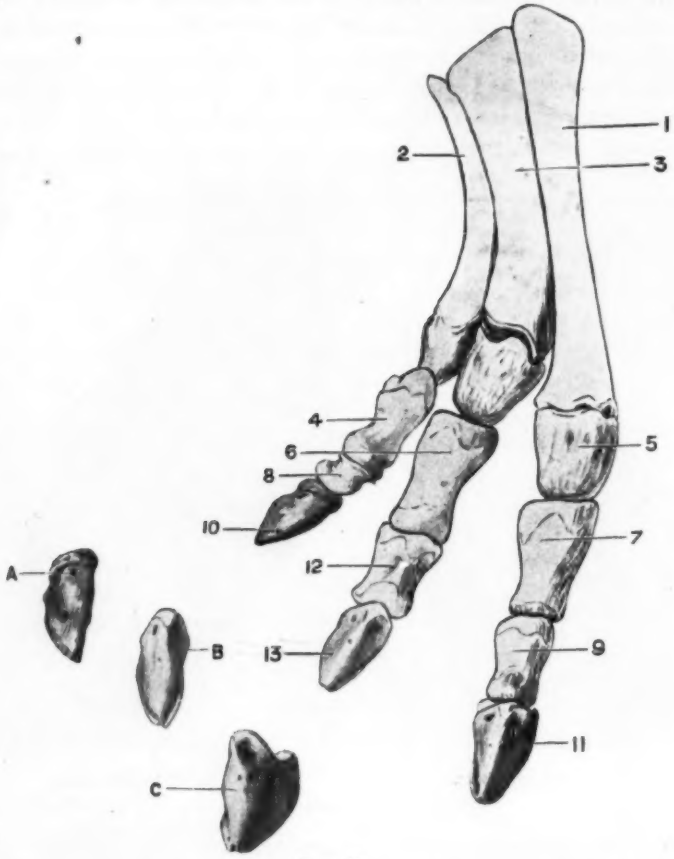


A. Anterior aspect. B. Posterior aspect.
Photographs of Specimens in Case V.

was large and well-formed, its outline being very symmetrical, more so in front than was that of the corresponding bones of the external digit. The second phalanx was much less symmetrical, being rather distorted (Case V, Fig. II, 8). It showed on its postero-internal corner a downwardly projecting nodule, which slightly overlapped the face of the terminal phalanx.

Two sesamoid bones only were found. One of these, which was much the larger, was articulated to the back of the distal

extremity of the large metacarpal bone of the middle digit. Anteriorly it presented a slightly concave articular facet. Two lateral surfaces, an apex and a base, could also be distinguished. Although the edges separating these surfaces were rounded and



CASE V.

FIG. XIII.—*The Bones, anterior aspect*: 1, 2, and 3, large metacarpals; 4, 6, and 7, first phalanges; 8, 9, and 12, second phalanges; 10, 11, and 13, third phalanges. A, terminal phalanx of internal digit; B, terminal phalanx of middle digit; C, terminal phalanx of external digit.

to a certain degree ill-defined, we have here a marked resemblance to one of the corresponding bones in the horse. The other sesamoid bone was about half the size and in the form of a rounded nodule.

The Terminal Phalanges (Case V, Fig. II, 10, 11 and 13).—These presented several very interesting features. All three were well-developed, those of the external and internal digits being very similar. The excentric surface of each of the two latter was convex, and in addition to other smaller foramina there was present a foramen in the position of the pre-plantar foramen of the horse, which was, however, placed nearer the elevation in the position of the pyramidal process. The other lateral surfaces were somewhat flattened, and on each there was present a foramen corresponding to the plantar foramen. The inferior surface was slightly concave and calls for no further remark. The excentric border of this surface was very sharp and convex, and each bone was very pointed at the toe.

On examining the corresponding bone in the central digit (13) it was found to be quite symmetrical, so that a sagittal section would divide it into two equal and similar halves. Both lateral surfaces were convex and blended at the front of the bone, and the appearance presented was not unlike that of the laminal aspect of the pedal bone in the horse, excepting that osseous laminæ were absent. Superiorly, the surface was raised into a prominent pyramidal process, on either side of which was a large pre-plantar foramen. The inferior surface was slightly concave, and postero-externally possessed a projection which extended upwards on to the posterior aspect of the distal extremity of the second phalanx. Two plantar foramina were present on this surface. It will thus be seen that this bone possessed many important characters which gave it the appearance and structure of a miniature distal phalanx in the horse.

The peculiar features enumerated above possessed by each of the three digits, particularly so far as the other bones are concerned, render it difficult to determine definitely which was the abnormal digit, but if observations were confined to the terminal phalanges, then there would be no hesitation in concluding that such was the central.

Case VI.

This is the pes of a foal with an external accessory digit. It belonged to the right limb.

On examining the specimen, the first point which attracted attention was the presence of an accessory hoof placed on the outer side of the region of the first phalanx. The metatarsus

was much shorter than normal, and on passing the hand down the limb there was found an enlargement on the outer side of the metatarso-phalangeal joint, which was hard to the touch, and which, but for the presence of the hoof referred to, might readily have been mistaken for one of the exostoses so commonly encountered in this portion. A deep vertical groove, however, could be traced over the front of the joint about an inch to the outer side of the median line.

This specimen differs from those previously described, inasmuch as both digits were enveloped in one fold of the integument from which the accessory hoof appeared as a kind of projection after the manner of the so-called "chestnut." On manipulation it was found to be firmly adherent and, unlike the chestnut, could not be moved about with the skin, showing that it was connected with more deeply-seated structures. On dissection this was found to be the case.

The posterior aspect of the metatarsal region was almost flat. The middle third of this portion was narrowed down very perceptibly, whilst the inferior third became broadened out again, and was almost double the width of the upper extremity. A careful examination failed to reveal any lines of demarcation between large and small metatarsal bones. The marked prominence at the back of the metatarso-phalangeal articulation observed in the normal limb was absent, and this area was almost flat. There was, however, a slight nodular enlargement placed a little to the inner side of the median line. Below the joint we had the first external indication of division into digits, for the point of a finger could be readily passed into a fossa in the integument slightly to the outer side of the median line.

The Hoofs.—The principal hoof was well formed and quite symmetrical. The wall was markedly convex in the transverse direction, and slightly also from above to below. The frog was large and well-defined. Its apex extended to an unusual distance into the sole. There was no evidence of wear.

The accessory hoof was almost symmetrical, its outer half being slightly larger than the inner. The outer heel was very prominent. The inner was attached to the skin on the outer aspect of the first phalanx of the main digit. The frog was well developed but slightly twisted.

Deep cutigeral grooves were present in both hoofs.

FIG. XIV.—Anterior aspect. FIG. XV.—Posterior aspect.

Illustration of Case VI.

The Bones.—An examination of the bones revealed several very interesting points.

The Metatarsal Bones.—The inner small metatarsal bone was very rudimentary. Its inferior extremity extended to the middle third of the large metatarsal. In general outline it bore a close resemblance to the corresponding bone of a normal limb. The outer small metatarsal was extremely well developed. Its distal epiphysis was very massive, its volume exceeding that of the proximal end. Almost throughout its extent this bone was blended with the large metatarsal, and on their anterior aspect not the slightest trace of a division between them could be observed. Its outer surface was very much curved with the concavity directed outwards.

Two nutrient foramina were present. One of these—the upper—apparently penetrated the outer small bone in its superior third. The lower pierced the large metatarsal in its inferior third and in an upward direction. From it a distinct groove extended downwards, indicating that the course of the nutrient artery was retrograde.

The Digits.—Each of the two digits possessed two phalanges.

The first phalanx of the principal digit presented six surfaces, of which the superior and inferior were articular. The anterior and two lateral surfaces were blended. They were markedly convex in the transverse direction, whilst from above to below they were concave. The posterior surface was flat, and the V-shaped roughened area which is such a characteristic feature of the normal bone was represented simply by faint markings.

The distal bone was of an extraordinary shape. Passing transversely around it was a faint constriction dividing the bone into an upper prismatic portion and a lower somewhat flattened division, and suggesting that this bone represented the second and third phalanges of the normal digit fused together. They were firmly ossified.

On the anterior surface there were two small apertures in the position of the pre-plantar foramina, and faint pre-plantar grooves were present which led backwards, not to notches, but to complete foramina in the wings.

The wings were very prominent. They projected backwards to an abnormal distance, and were pointed at their extremities. There was no trace of division into basilar and retrocessal processes, and the lateral cartilages were absent.

On the inferior aspect the semilunar crest was absent, as also were the plantar foramina. Two very faint plantar grooves extended forwards and inwards, and became lost towards the centre of this surface. There was no trace of division into solar and tendinous areas, and the navicular bone was absent.

In the accessory digit there were also two phalanges. The first was distinctly nodular. Superiorly it carried a small elliptical, slightly depressed facet for articulation with the corresponding metacarpal bone. Posteriorly it was very slightly convex; anteriorly, laterally and inferiorly, markedly so.

The distal phalanx resembled that of the better developed digit in miniature. Like the latter it was quite symmetrical, but was somewhat flattened, being more compressed from before to behind.

It is difficult to offer any explanation of the problem presented by this interesting specimen. In the metatarsal region we have features which are even more suggestive of a possible transition from ordinary polydactyles to schistodactyles than in Cases IV and VII; such, for instance, as the extremely small and poorly developed inner small metatarsal bone, the extraordinarily well-developed outer small metatarsal bone, and its perfect blending with the large metatarsal. On the other hand, the phalanges in both digits, although presenting marked differences from the corresponding bones of a normal limb, are as yet quite symmetrical.

Case VII.

This specimen was the manus of a foal with a peculiarly developed main digit and a prominent accessory digit on the outer side.

In the metacarpal region three bones could be distinctly felt. The innermost appeared to be almost normal, and the so-called "button" at its distal extremity could be felt without difficulty. Its position, however, was only about half an inch above the metacarpo-phalangeal articulation, so that the bone was slightly longer than usual.

A well-marked groove could be traced down the front of the specimen, evidently indicating the line of division between the large and external small metacarpal bone. It terminated about an inch above the principal metacarpo-phalangeal articulation.

The front of the metacarpo-phalangeal joint was very slightly broader than that of a normal limb. At the back of that carrying the principal digit and to the inner side was a somewhat rounded elevation. No trace of the horny excrescence commonly known as the ergot could be found. The integument was slit up to the metacarpo-phalangeal joint, the first phalanx of the accessory digit being enveloped in a separate fold.

The main digit was very much narrower than that of the horse. It was not symmetrical, and was more compressed from side to side. Its inner surface was convex; its outer almost flat. In general appearance it bore a striking resemblance to that of the fully-developed digit of the ox.

The Hoofs.—Here the resemblance to the ox was still more striking. The hoof of the accessory digit was much the smaller, otherwise it was exactly similar to that of the main digit. Both were symmetrical. Anteriorly the wall recurved on to the mesial aspect and became lost. The interior presented a deep cutigeral groove, and the horny laminæ were well developed and nicely defined.

The Bones (*Metacarpal Bones*).—Three of these bones were present, corresponding to the large and two small bones in the normal limb. The innermost was longer than usual, a point which could be detected before the removal of the skin, as already remarked. It was, however, very much more slender.

The central metacarpal was the largest. It presented several features which call for special remark. In its length it was slightly but most peculiarly curved, and at its distal epiphysis was twisted forwards and outwards on its longitudinal axis. The inner half of this epiphysis was normal, but the outer half was considerably reduced in size, as though a portion had been chipped off. The facet for articulation with the outer small metacarpal extended for fully three-fourths of the distance down the bone. Superiorly it was broader and faced slightly more outwards than in the normal bone. Proceeding down the shaft it curved round the bone, and in its inferior portion looked directly outwards. At its inferior extremity it carried a convex facet for articulation, with the first phalanx in place of the pulley-like surface usually presented.

The general characters of this bone were such as to suggest a natural effort to accommodate the accessory digit alongside the one which was fully developed.

The external small metacarpal bone was exceeded in length by the central metacarpal by only half an inch. It was much curved in its length with the concavity directed outwards. Its proximal epiphysis in general appearance resembled that of a

FIG. XVI.—Anterior aspect. FIG. XVII.—Posterior aspect.

ILLUSTRATION OF CASE VII.

normal splint bone, with the exception that it was very much larger—being, in fact, more than double the size of that of the inner small metacarpal. On its superior aspect was a large flattened facet for articulation with the unciform bone. The inner surface carried superiorly two very small facets for articulation, with like facets on the large or central metacarpal, with which they formed synovial joints. Below these the surface showed an elongated triangular area with the apex directed downwards, and which was clearly applied to a similar area on the central metacarpal. But the bones were not united, as was the large to the inner small metacarpal. The distal epiphysis was very massive, being almost equal in size to the upper extremity. It was placed alongside that of the central metacarpal. Inferiorly it presented an articular surface which was elliptical in outline, the long axis of the ellipse being directed backwards and outwards. The surface was convex.

The Phalanges.—The large digit possessed three phalanges. The first was well developed. Superiorly it was depressed for accommodation of the convex area on the distal end of the large metacarpal bone. Its posterior surface was comparatively smooth and devoid of the roughened area for the attachment of the inferior sesamoidean ligaments. Its distal extremity was slightly narrower than usual, and was convex inferiorly, no antero-posterior groove being present.

There was nothing very peculiar about the second phalanx. There was no roughened area posteriorly for the attachment of the complementary cartilage, since this structure was absent.

The third phalanx was remarkable in that it bore a strong resemblance to the corresponding phalanx in the ox. It was, however, scarcely so much compressed from side to side. On its anterior surface there was one very large pre-plantar foramen from which a deep groove extended upwards. Another foramen, corresponding evidently to the outer pre-plantar foramen, penetrated the bone on its outer surface and close to the margin of this articular surface. The semilunar crest was absent, and the inferior surface was not divided into solar and tendinous areas.

A small pea-like sesamoid bone was present in this digit, but the navicular bone was absent.

In the accessory digit there were two phalanges. The first

represented the first and second phalanges of a normal digit which had become fused. This was apparent from a superficial examination of the specimen. These two phalanges were very symmetrical and well developed; in fact, with the exception that they were smaller, they were very like the corresponding phalanges in the large digit. The terminal phalanx was more rudimentary. Its anterior surface was markedly convex from side to side and almost straight from above to below, and was smooth. There was present superiorly a slight elevation in the position of the pyramidal process.

In the case of the main digit one wing only was present on the terminal phalanx. This was the inner, and there was a tendency to division into basilar and retrocessal processes. In the accessory digit there was a small backwardly projecting piece of bone in the place of the wing, and in this case on the outer side of the bone.

This specimen is of interest when considered in conjunction with Case IV. In the latter a possible transition between the ordinary polydactyles and the schistodactyles was suggested. The same suggestion is made here but in a less degree. This suggestion the following points appear to support:—

(1) The peculiar conformation of the distal extremity of the large metacarpal bone.

(2) The form of the metacarpal bone carrying the accessory digit, and the manner in which it is disposed.

(3) The long axis of its distal epiphysis is evidently arranging itself in line with that of the large bone.

(4) The tendency to a reduction in the size of the inner portions of the phalanges. This is most marked in the terminal phalanx.

(5) The asymmetrical but similar hoofs. Apart from the difference in size, were the hoofs alone examined, one would unhesitatingly pronounce them as belonging to one of the schistodactyles.

Attention has been directed to the striking points of contrast and similarity as they have occurred during the description of the specimens, and it is thus unnecessary to recapitulate them here in the form of a summary.

Reviewing the foregoing cases, however, it will be readily conceded that in the structure of supernumerary digits there are

frequently encountered anatomical features characteristic of the digit of some closely allied species. Not only is this so, but there is at least suggestive evidence that in such cases the tendency is to reproduce the normal anatomy of the digit of a member of some other group of the order rather than to duplicate the anatomy of the normal digit of the same species.

The writer desires to express his thanks to Professor Herdman, F.R.S., for many kind suggestions.

ABOUT ACARINA—THEIR HABITS, HOSTS, PRACTICAL METHODS OF EXAMINATION FOR, AND LIFE-HISTORY.

By THOS. B. GOODALL, F.R.C.V.S., F.L.S.
Christchurch, Hants.

(*Continued from p.* 182.)

Myobia may be found practically on all small mammals—moles, rats, voles, shrews, and mice, though the rat is probably their special host. They differ somewhat, both in size and detail, according to the host on which they are found. The very curious corkscrew-like twist of the first pair of legs, by which they cling on to the hair of their host, is well worth a close examination.

The *Myocoptes*, probably the smallest of the louse-mites, and found on the mouse and the shrew, has a modified twist in its two *hinder* pairs of legs.

The *Listrophorus* is also found on many small mammals, though the Mustelidæ (the stoats and weasels) are probably its most frequent hosts. The strange clasping arrangement of the palpi is well worth examination.

Dermaleichus.—The remarkable hinder legs of the males in the Chelopus are well shown. These are used as prehensile organs in the act of copulation, the huge claws clasping the whole body of the female. Many birds are infested by them, but the fact of just having found the dead body of a swift (*Cypselus apus*) reminds me that the swallow tribe appear to be more subject to infestation by acarina than any other bird. This one, which has evidently been dead for some hours, has numbers of the Dermaleichi on its head, and also two or three very lively large Gamasidæ, carried to the carcase in all probability by beetles.

I have mounted a female Dermaleichus in the very act of

"laying an egg." The ovum is ovoid and large, about one-sixth the size of the "mother," and it is extruded from under the body at a point that in insects and arachnida would be in the region of the thorax.

Dermanyssus.—A word about the *Dermanyssus avium.* They were taken from a crevice by the side of a perch in a very old wooden fowl-house. Some of them were placed in a glass-top box for further specimens and for watching. They were put on one side, and in the bustle of a busy time were forgotten. Some months afterwards, in raking out a corner of my shelves, I came across this box again, and to my astonishment I found it contained still living Dermanyssi, with a large quantity of *débris.* Of course, it must have been a case of the stronger preying on their weaker brethren, but it is a good illustration of the mode in which many of these minute forms of life may be kept going even after removal from their normal environment.

To verify or disprove the above for the purpose of correction in going over these notes, I took a scraping of the Dermanyssi from a crevice of an old poultry-house on August 29 last (1912). The scraping, which would about cover a sixpence, was put in a glass-top box, the edges of the lid and box were sealed together with stamp paper, and the box has been kept on my desk and examined frequently. They congregate in groups on the under surface of the glass, which they cover with what looks like a dirty sort of web; numerous large white round ova are deposited on this from day to day and I have found living Dermanyssi at the beginning of February.

Gamasidæ.—To those living in the country, this is perhaps the best known of all the mites. As a family they should be regarded as universal scavengers. At all times of the year they may be found in dung, on dead bodies of all kinds *in the early stages* of putrefaction, and on and about decomposing organic matters generally.

I look upon beetles, flies, and other insects on which they are found, sometimes (on the former especially) in great numbers, firmly adherent to the spaces between the legs at the under part of the body, merely as their carriers, and they probably leave these temporary hosts when they are deposited on their own food supply. It is almost as common to find it on the Necrophaga as the Geotrupinæ, and it is probably carried by these insects under-

ground, as the one buries small carcases and the other tunnels under dung. I have found Gamasidæ in the carcase of a dog that had been buried for some weeks about three feet underground. A certain amount of moisture is essential for their existence.

Oribatidæ (Beetle-mites).—These are very common, and pretty generally dispersed. I have found them at all seasons of the year. One group of them, which I am unable to identify, I have always found on dead dermal appendages (horns, hoofs, &c.), and its function appears to be disintegration of these indigestible commodities. A certain amount of moisture seems to be essential for it to live, and it is invariably found on the under damp surface of its food supply. When placed on the slide of the microscope it has a strange habit of extending and retracting a very long proboscis.

Other Oribatidæ I have found on dead ligaments, cartilages, and bones.

Several genera, of which I have sent you only two or three specimens—the only ones preserved worth sending—may be almost constantly found under the bark of dead trees, standing or fallen. They are always found in large colonies, and are very active in their movements when first disturbed.

For the information of those who have not seen them and are interested, the Oribatidæ are always in groups, and look very much like very, very minute shining black beetles. The shell or carapace is very hard, and they can retract the whole of the body, rostrum, and limbs within the shell.

Another, which I think is the *Eremæus tibialis*, I have found frequently in dead cabbage stumps. As is only too well known to gardeners, these stumps are very slow to decay, almost as slow as the horns and hoofs of mammals, and the agriculturist generally clears them off his land and burns them in preference to leaving them to rot. Here again, then, the mites come in as most useful scavengers.

Taken altogether as a family, it appears to me the Oribatidæ should be regarded as man's very useful allies, disintegrating and returning to the elements such matters as would, in Nature, and without man's use of fire, become both noxious and dangerous.

Tyroglyphidæ.—I have included examples of these commonly distributed mites; they include the cheese-mites, sugar-mites, and others. A rather curious thing I have noticed is, that they are

generally associated with mould, being found on mouldy cheese, mouldy jam, mouldy fruit, &c. This does not, of course, apply to all of them, for if looked for they may be found in very strange places, as for example, in the Brazil nut.

A few words about the *Rhizoglyphus*.

It was found infesting the bulbous roots of *Ornithogalum album;* the bulbs were sent me by a florist in Cape Town in January, 1908.

They were potted in sandy loam on arrival here, and in 1908 they made fairly good foliage, but no flowers. In 1909 only two of the bulbs made any foliage (there were a dozen of them altogether), and in these only about an inch above ground. In July I took the roots out of the pots to search for the cause, and found the Rhizoglyphus in large numbers between the scales of the roots; the rootlets from the bottoms of the bulbs were destroyed.

The mite is oblong in shape, a line across the back marking off the abdomen from the thorax, the anterior part of the body is narrowed, a few setæ are in evidence round the body in a fresh specimen, but they are rendered invisible when mounted in Canada balsam.

The mouth parts are very large, an outer pair of mandibles on either side are thick and rounded at the base, where they form a single article. They are terminated by a pair of three-toothed chelate mandibles.

Inside these are a pair of more delicate maxillæ, terminated by single hooks. These are placed on either side of a sharp-pointed rostrum, or ligula, which appears to be barbed. These very pronounced mouth-organs agree rather with Cheyletus, but the legs agree with neither the Cheyletus, nor other Tyroglyphidæ. The two anterior pairs are separated from the two posterior pairs as in Cheyletus. They are all five-jointed, and terminated by a single claw without an onychia. The two anterior pairs are very thick and strong; the two posterior pairs are very small.

It is very probable that these mites were imported with the bulbs, and, if so, the fact affords ample food for reflection as to the possibilities of the modes of transmission of disease from one country or continent to another.

Quoting from Murray's " Handbook," p. 258, I find a mite of

the same genus has been described by M. Plancheon and by Mr. Riley as being found on the roots of vines in association with the Phylloxeræ, but the description of it does not agree with this either as regards its mouth-organs or legs.

Again quoting from Murray's "Handbook": "Many writers on these mites (Dujardin, Claparède, Robin, and others) have described a curious circumstance in their life-history; they have observed what they have described as a Hypopus emerging from the body of Tyroglyphus or Rhizoglyphus."

As I was engaged in capturing these specimens, I noticed, on the scale of the bulbs in which they were, a number of bright chestnut-coloured spots, which were so firmly adherent to the root that I had the greatest difficulty in scraping them off with the points of my needles; indeed, I spoilt quite a number of them before I was enabled to get one transferred to the microscope slide, and then, lo and behold! I found it to be the dried skin of a Rhizoglyphus, covering what appears to be an ovum.

From this I should imagine that this mite behaves in the same manner as the larger "Scale" insects of plants, in which case the mature female becomes firmly agglutinated to the bark of the plant, and dries up, her hardened and dried body forming an effective shield for the eggs which are found under it, and which in due time emerge as larvæ.

It should be remembered that Glyciphagi are ubiquitous; they may be found wherever there is dust caused by the breaking up of epidermic scales, or feathers, or hairs, and it is important that they should not be confounded with symbiots or psoropts, and because acari are found it is not wise to jump to too hasty a conclusion.

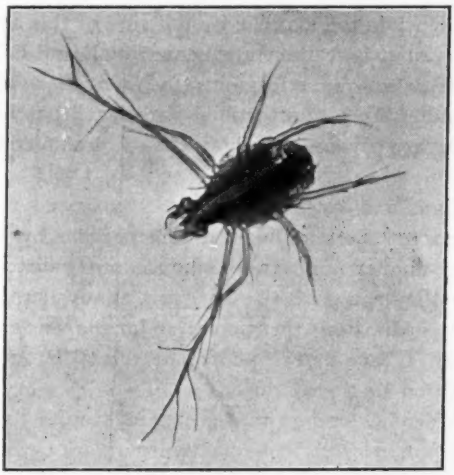
I well remember a case in point—it was years ago. I was called in to advise where there had been an outbreak of mange in a kennel of valuable terriers. On walking through a wood where they were exercised, I found numbers of acarina on some decaying wood, and not knowing so much of those creatures then as I did later, I formed the opinion that the terriers were infected from the wood, and, without giving my reasons, advised that they should not be allowed to go there. The mange was got rid of, and for some time I congratulated myself on my prescience, but I know better now, for acarina of one sort or the other may be found almost everywhere where organic matter of

any kind, animal or vegetable, is going to decay, and these are by no means always parasitic on animals.

If a cat were found in a rat-infested rick of corn, we should scarcely conclude that it was after the corn, but rather was on the look-out for the rats or mice that were enticed there by the corn.

Cheyletus eruditus.—This must be compared with the figure and the description in the "Handbook" to see the difference.

I have taken the Cheyletus from the inside of a dead and dry dragon-fly, in company with the *Tyroglyphus entomophagi,* on which it was no doubt preying, for it is decidedly predatory, and devours other and weaker mites.



Chyletus eruditus from amongst Tyroglyphidæ in dust.

I have found it amongst Tyroglyphidæ in dust and amongst old bones, and on one occasion I captured one with a Tyroglyphus in its mandibles. I should say that it will be found that it preys on these acarina particularly, and may be found in the places frequented by them.

The mandibles are *very large.* The illustration in the "Handbook" gives no adequate idea of their size, and they are terminated by a pair of strong hooks.

The first pair of legs are twice the length of the next and other pairs. They are much branched and feathered, and are terminated by a pair of setæ; the setæ are all feathered. It is a

bright red colour, and it is most interesting to watch its actions amongst the white Tyroglyphidæ, for, whereas they move straight along in one direction, the Cheyletus takes jerky runs, first one way and then another.

Scirus.—A few words about this, I think, would be appropriate. This specimen was taken on the surface of the ground where the carcase of a mole had been buried by the Necrophaga beetle. It should be compared with the description and illustrations given in Murray's "Handbook."

In the fresh specimen a hollow tube may be seen running down the centre of the long-snouted proboscis, through which a round body, a valve of some sort, is constantly being excerted and retracted, while the maxillæ by the side of this are working. The antennæ, or palpi rather, are geniculated, and have on them a number of setæ. In one genus the body is oval and most beautifully coloured, a pink ground with black patches over the shield or carapace giving it the appearance of a splendid tortoise-shell.

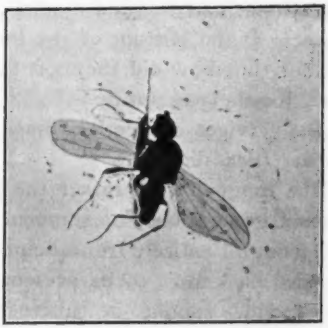
Trombidium and Bryobia.—There is no need to say much about the harvest-mites or bugs, except perhaps by townspeople taking their summer holidays in sandy country districts. There is no doubt they can give rise to great annoyance by piercing, and probably insinuating themselves under the skin, and depositing a toxine. I have known people suffer real agonies from the irritation caused by these acarina.

They are also a common cause of great trouble to dogs in the warm summer weather. They may be found in great numbers as small red spots between the digits, and sometimes about the passages of the ears, in which position they cause as great annoyance as the symbiots.

I have found samples of Continental hay literally swarming with acarina, notably in the autumn of 1892, when much was imported.

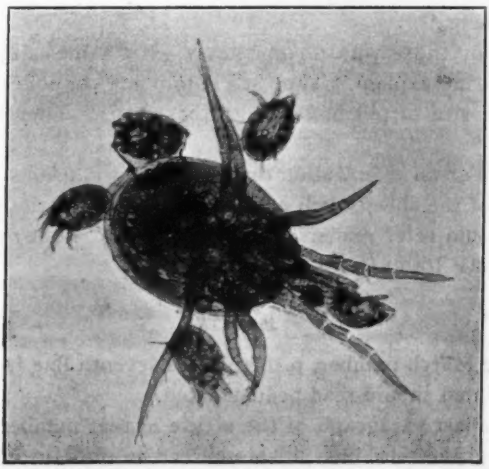
The acarina use many forms of bearers to convey them from place to place. I have mounted a few slides to show this, and until one knows it, one often wonders how it is they manage to intrude themselves into all sorts of apparently impossible places.

As an instance, I found Glyciphagi in my insect-preserving box, which *was* practically air-tight. I was determined to find



A small fly (*Musca*) infested with small red atoma (?).

Some of the atoma from the fly more highly magnified.



Gamasid infested with hypopa (?). The small parasites were adherent before mounting. (From foreign hay.)

out how they got there, and I found a small hole made by one of the boring insects at the bottom of the box. No doubt this was their open door, but how did they get so far? They must have had a carrier, for they cannot fly.

They utilize the services of beetles, flies, and other insects, and larger acarina. (See slides.)

The facts of the longevity, or rather the power of retaining life through several generations, of some of the semi-parasitic acarina, even when cut off entirely from their normal food supply, and of parasitic acarina known to be present, though they may not always be found, should be instructive to veterinary practitioners.

It is not unusual to find that Glyciphagi and others that are parasitic on the bodies of birds and animals. The possibility has often occurred to me whether acarina may not be disseminators of blood parasites, as one family of them, the ticks, are, or the flies.

Notes.

I.—Advice to Students.—In taking up this, or any branch of up-to-date science, always keep a Latin Dictionary and a Greek Lexicon at hand, and do not neglect to use them, and never let a word pass you without mastering its meaning. The right derivation and meaning of words will be found to be of the greatest help.

II.—For those who do not know what I mean by glass-top boxes, let me explain. They are entomological collecting boxes about the size of pill boxes, with glass tops. They are bought "nested."

III.—For an explanation of my frequent allusions to parts of the foot of the sheep, such as "fossa," "horny bridge," "sac," &c., I would refer readers to my article on "Foot-rot" in The Veterinary Journal for October, 1891.

Errata.

In the March number, p. 111, in the seventh line from the top, pedunc*t*ilated should read pedunc*u*lated.

In the last paragraph of the article in that number, p. 112, in the second and third lines, it should read *on* the Mustelidæ, and *on* mice and shrews, instead of *in*.

In the April number, p. 174, the illustration on the bottom right-hand corner should be described as the *Symbiotes* felis, *not* the Psoroptes.

And in the last line but one of that part of the article, p. 182, it should read "on grass at *my* place," instead of "on grass at *any* place."

[I very much regret that so few of my illustrations could be inserted by the publishers.

THOS. B. GOODALL.]

Clinical Articles.

ANCIENT HISTORY AND A POST-MORTEM EXAMINATION.

BY E. GRANVILLE HASKELL, M.R.C.V.S.
Taunton.

THE subject was a very aged chestnut pony which was found unable to rise, and was destroyed, treatment not being attempted on account of its age.

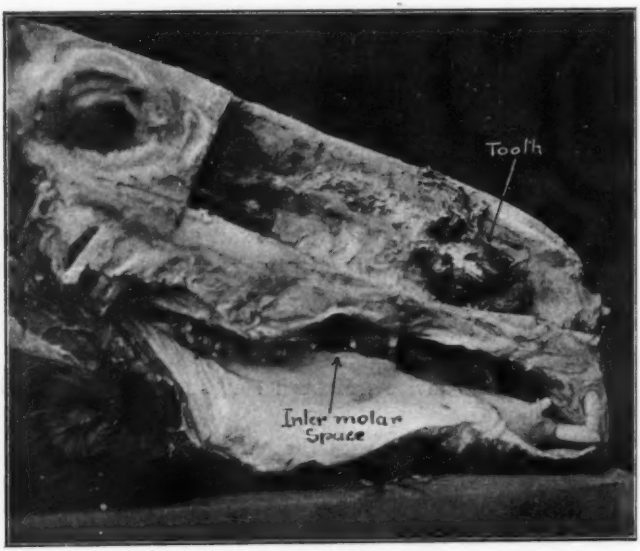
For some ten years the animal had suffered from chronic fœtid discharge from the right nostril, and although at different times professional advice had been sought, treatment had been unsuccessful.

My own acquaintance with the case was made about a year ago, when I was asked to attend to the teeth on account of the animal having some difficulty in masticating its food. Examination of the mouth then revealed the existence of a small space between the first and third upper molars on the right side. The second molar was missing, but as I was told the tooth had been extracted many years ago little attention was paid to the part, more especially as the cavity appeared quite healed as far as could be ascertained on casual inspection; the adjacent edges of the first and third molars also nearly touched. At the same time attention was drawn to the nasal discharge. On examining the right nasal cavity with the fingers, a hard, bony body could just be felt, apparently quite immovable, and a portion of what appeared to be cartilage with rough, bony fragments embedded in it was brought away. A whalebone probe was passed fairly easily along the lower border of the nostril; respiration was

carried on through this side of the nose with difficulty. Owing to the age of the animal treatment was not asked, but a reserved diagnosis was given to the effect that the obstruction was probably due to a bony outgrowth in the nasal cavity as the result of injury.

The destruction of the pony afforded an opportunity of procuring the head for examination.

On removing the skin and outer bony l .ndary of the right nasal cavity an interesting state of affai.s was disclosed. The



Photograph showing the extraordinary position of the missing molar tooth.

greater part of the nasal space was packed with a mass of evil-smelling decomposing food material and inspissated pus. Anterior to this and almost occluding the cavity was lying the missing second molar tooth. Its position was horizontal to the long axis of the head, with the crown directed forward, its anterior extremity being about 4 in. from the nasal orifice. On clearing away the foreign material it was seen that almost the whole of the anterior turbinated bone had disappeared. The edge of the posterior turbinated bone which springs from the superior maxilla was still present, thus forming, so to speak, a

linage over the posterior meatus, and keeping patent a small channel for respiration. The space thus formed between the existing plate of the posterior turbinated bone and the nasal bone was closely packed with the decomposing food *débris* before mentioned, which was prevented from passing forward by the tooth. Inquiry elicited the fact that food material had not been observed to pass (though probably a little did), but only a little greenish coloured fluid and thick nasal discharge. It was evident, of course, that there existed a communication between the mouth and nasal cavities, and this was discovered between the first and third molar teeth. There was here found a perfectly healed

Showing a comparison between the misplaced tooth and the one on the opposite side

channel passing upwards and inwards, about ½ in. in diameter, and freely communicating between the two cavities. During mastication food must have been forced through this channel into the nose and from there backwards by way of the posterior nares to the pharynx. The presence of this food material had excited chronic inflammatory changes resulting in the disappearance of the greater part of the turbinated bones with occasional discharge of small portions of their cartilaginous prolongations through the nostril.

Further enquiry as to the history of any old injury having been sustained revealed the fact that some ten or twelve years

ago the teeth had been attended for the purpose of removing irregularities. Probably chiselling took place, the second molar was fractured at its insertion into the superior maxilla, and then was gradually forced upwards by the action of the lower opposing molar and intervening food until it reached the nasal cavity.

Comparison between the displaced tooth and the corresponding tooth of the opposite side is interesting. The crown of the former, not having been subjected to wear for so long a period, is more than double the depth of the latter, giving some indication of the time it has been in concealment. The roots of the displaced tooth have disappeared, their position being occupied by rough, granular osteophytes embedded in which may be seen a fragment of detached enamel. The tooth also appears to have been split in the direction of its length, two of the edges being extremely sharp. The rough, bony masses at the base of the tooth are probably the result of inflammatory action as the result of fracture of the alveolar cavity and before living union ceased between the fractured portion of the bone and the contiguous structures.

SHYING IN HORSES.

SUMMARY OF THE CONCLUSIONS OF DR. SUSTMANN, OF DRESDEN, AFTER MANY OBSERVATIONS.

(1) SHYING may be noticed in all breeds of horses and at every age. However, high bred and pure bred races, with or without admixture of Arab or thoroughbred blood, are most inclined to the defect. So also are in-bred and incestuously bred animals.

(2) The cause of shying is due to a sudden and unexpected irritation of one or several organs of sense. Nervous irritability evinces itself in the horse's body reflexly or instinctively by rapid dislike or dread and declares itself externally just as quickly by symptoms of fear, of displeasure, or the impulse to run away from the impression. Diseases of the organs of sense and those which depend on a nervous basis may favour and increase the act of shying.

(3) The rise and decline of the effect of the irritability bears a relation to the degree of the first irritation and the resistance encountered.—*Deutsche tierärzt. Woch.*

AN UNRIDABLE MARE CURED BY OVARIOTOMY.

By Staff Veterinary-Surgeon SEIDLER.

A dark brown eight-year-old mare belonging to an infantry officer had always been somewhat ticklish when grooming and riding, and for three months had become so obstinate and restless that the officer concerned was no longer able to use her. As soon as the rider approached the animal in order to mount her, she began to shriek, struck out, and went round in a circle. When he succeeded in mounting her, she bucked continuously, went round in a circle squealing loudly, then stood stock still, winking her vulva, and seemed as if rooted to the ground, being quite immovable even by use of the spurs. At times the mare was quieter for ten to twenty minutes, and answered to all demands of the rider. Then again the rider could do nothing with her, and had to get down. The symptoms were not those of staggers, and previously the mare had not resented saddle pressure. Chronic disease of the ovaries was therefore assumed. As in this chronic irritable state the mare was almost valueless, it was resolved to spay her.

The animal was consequently kept on low diet for three days, and by suitable disinfecting irrigations of the external genitals was sufficiently prepared. The vagina was washed out once daily with weak lysol solution. The operation was then conducted after the hind legs had been secured. Before operating, the rectum and bladder were emptied, the external genitals and their surroundings disinfected, and the vagina once more washed out with lysol solution. Half an hour previously the mare had a clyster of 75 grm. of chloralhydrate. The operation was performed according to Bayer's method with the chain écraseur. The locating of the ovaries and putting on of the chain was accomplished without any great difficulty. The subject remained rather quiet during the operation. The two ovaries weighed together 170 grm. (left 88 grm., the right 82 grm.), appeared greyish-red, felt hard, and were studded with protuberances of the size of a child's fist. The protuberances were fluctuating on pressure; on cutting them a yellowish watery fluid escaped. On the right ovary were four large follicles, on the left six. The inner surface of the follicle walls was smooth and on section as thick as the back of a dissecting knife blade.

After the operation the animal was raised behind and dieted for fourteen days. The first four days the mare was dull but ate the food given quite well. The temperature at first 39° C. gradually declined to 38.2° on the fourth day. After four weeks the saddle was put on and the mare ridden again.

On mounting she was at first rather ticklish, but showed no obstinacy and went quietly. She was subsequently ridden every day, and there was no difficulty in sitting or riding her. In three months she was so quiet that she could be ridden by a lady. Degeneration of the ovaries was evidently the cause of the defect in this mare.—*Zeitschrift für Veterinärkunde.*

THE THERAPY OF OBSTRUCTION OF THE OMASUM.

By R. BISSAUGE.

Indigestion, or obstruction of the omasum, is seldom a primary but often a secondary ailment, which is always accompanied by an inflammatory condition of the mucous membrane of this organ and which frequently comes under notice in practice; it is an obstinate disease, hard to overcome. The author considers the cause to be a gastro-intestinal auto-intoxication causing interruption of the motile power of the omasum, on which account it is frequently connected with a lack of activity of the rumen. The quality of the food cannot be blamed. Spontaneous cure only occurs exceptionally; cure can only be attained by a rational, methodical, and sufficiently long continued treatment.

The author distinguishes several indications in the treatment: (1) The dilution of the impacted food between the leaves of the omasum; (2) the inciting of the contractile power of the organ; and (3) the combating of symptoms of auto-intoxication.

The dilution of the impacted food is best accomplished by warm, mucilaginous fluids in large quantity (20, 25, 30 litres in a day), given as drenches if the animal will not drink. When drenching it is important to give slowly and in unison with the gulps of the animal, so that a specified part of the fluid gains the omasum. Decoctions of linseed, mallow, or barley, made as a rather thick mucilage, but not pasty, are suitable for administration.

The introduction of large quantities of water into the rumen by means of a canula, as recommended by Hohne, is not

countenanced by Bissauge, because paresis of the organ is favoured thereby.

After two to three days of dilution one begins to try and establish contractility of the omasum by means of warm aromatic medicaments, such as infusions of peppermint root, green tea, sage, wormwood, and camomile, which act chiefly on the atony of the rumen and by continuation on the omasum.

These infusions are given cautiously with a small quantity of alcohol, or better with hydrochloric acid, in order to overcome dyspeptic symptoms.

The author has used the following with success for some years:—

(1) Herb. menth. pip., herb. absinthi, herb. trifol. fibr., flor. cammom. vulg. āā 25.

M.D.S.—Boil with 1½ litres of water and strain.

(2) Spirit frument. carv. 250, acid hydrochlor. dil. 40, tinct. nux vom. 30.

Give three times daily with half a litre of the above infusion.

The medicine is used up in twenty-four hours and may be repeated without injury.

Copious clysters of cold salty water or diluted creolin aid in the evacuation of the bowels and combat absorption of toxin. After diluting the contents of the omasum the author has frequently been successful with barium chloride, 15 to 20 grm. given three times daily, as an electuary. Rumination ceasing, 5 to 10 grm. of ipecacuanha may be given in a warm aromatic infusion.

The best excitants of contractility of the omasum are eserine, veratrine, pilocarpin, or arecolin. It is advisable to inject weak doses, 1 to 2 or 3 cg. at the most. Veratrine is especially to be used with caution in cattle practice. The author considers arecolin effective and little dangerous. Massage of the rumen and the giving of hay tea, grain concoction, or whole milk helps. Drinks and aromatic infusions should be given until the excrement is normal.—*Revue Générale de Médecine Vétérinaire.*

[The translator has had most success in the treatment of this complaint during the last three years by using "Arecovetrol" capsules (a combination of arecolin, veratrine, and strychnine) dissolved in linseed tea, and nothing but these for four days at least. "Obstruction" of the omasum is a better word to use than "impaction." A certain amount of "impaction" would always seem to exist.—G. M.]

Canine Clinical.

METASTATIC CHONDROMATA IN DOG.

By R. J. FOREMAN, M.R.C.V.S.
Tottenham, London, N.

Subject.—Irish terrier bitch, aged 11 years.

In June, 1912, a large, very heavy tumour was removed from posterior mamma. This tumour used to knock on the ground when she ran about. It weighed over 1 lb., and was of same character, cartilaginous and bony, as those subsequently found internally. Recovery took place by first intention and animal was sent home in ten days. No sign of recurrence was visible six months later.

January 18, 1913. Called in to bitch; found her rather distressed in breathing and for few days she had been unable to jump on chairs as usual. On palpation I found a large lump on the near side of the abdomen and a smaller one on the off side, freely movable. They appeared to be painless and there was no distension of abdomen, but animal seemed to be very heavy. I gave iodides, arsenic, and aspirin and allowed them to give her a good time and any diet; and prognosed death in about six weeks; thought they were ovarian tumours.

January 31. I called and found bitch much better. No distress, quite lively; tumours slightly increased in size; appetite very good.

February 27. Died suddenly after taking food.

Post-mortem.—Upon opening the abdominal cavity I found large tumours of the liver and spleen not attached to but in the tissue of each organ, leaving very little of either organ intact. It seemed very surprising to me that the general health had remained so good. Only a little distress occasionally in breathing, which was relieved with an aperient. The last two or three days she had been unable to stand without help, but all the past year, right up to death, she appeared to be a happy, lively animal. The owners did not wish for her destruction unless she was suffering pain. I could not say definitely that she was, and they did not mind any trouble in looking after her.

I took the tumours to Professor Wooldridge, who reported that they were ossifying chondromata, and were apparently

secondary to the mammary tumour. He further stated that metastatic chondromata were very rare, and advised me to record the case. The tumour in the liver weighed 1 lb. 10½ oz., and that in the spleen 1 lb. 3½ oz.

THREE INTERESTING CASES OF CANCER.

By FREDERICK HOBDAY, F.R.C.V.S., F.R.S.E.
Kensington, W.

Case 1.—The subject was an exceptionally intelligent Aberdeen terrier bitch, aged 7 years, and the animal had enjoyed excellent health until December of 1911, when she became "out of sorts" and ill at ease after any exertion. At first this was put down by the owner, a well known West-End physician, to bowel derangement, and after these had been put in good order she certainly was brighter. When I was called in there was distinct respiratory disturbance, and it was quite clinically evident that there was effusion into the pleural cavity. On three separate occasions in December and January the chest was tapped, twice on the right side and once on the left, on each occasion fluid being withdrawn, once as much as three and a half ounces. Bacteriological examination of the fluid revealed nothing definite. After each operation she appeared to obtain great relief, but in November of 1912 she began to get emaciated, and finally died.

Post-mortem examination revealed the presence of a carcinoma involving the upper part of the left lung, and pressing on the large vessels in that region, and also on the œsophagus.

Case 2.—In December of 1912 my opinion was requested over the case of an Aberdeen terrier bitch aged about 7 years, the subject of an enlarged abdomen, which I diagnosed at the time as ascites. As the animal was a very great pet, and in no immediate danger, a course of potassium iodide was prescribed with suitable dietary and nursing, and the owner was told of the probable sequel and the necessity for an operation in the near future. Taking her on a visit into the country, as she appeared to become distressed, the services of Mr. J. C. Deville, M.R.C.V.S., of Uttoxeter, were called in, and he performed *paracentesis abdominis*, removing a quantity of clear fluid from the abdomen. This gentleman then advised that the bitch should

be returned to me in London, as when the fluid was removed a large tumour could be distinctly felt within the abdomen.

On January 5, under chloroform anæsthesia, an exploratory laparotomy was made, the incision extending from sternum to pelvis (and afterwards requiring twenty-seven sutures to close up), and the internal tumour found to be in the left ovary, which was literally as large as an orange, and had become adherent to the spleen and to the stomach. Six large vessels were ligatured and the whole of the uterus with both horns and ovaries removed, also by ligature. Recovery was absolutely uninterrupted, fourteen of the sutures being removed eight days later, and the remainder on the twelfth day. The only treatment of the abdominal wall was the shaving and painting with tincture of iodine immediately prior to operation, whilst afterwards nothing other than the application of tincture of iodine once a day, and clean cotton wool with a clean bandage each time was used, the wound healing *per primam;* no application of the scrubbing-brush, or even soap and water.

The left ovary (enlarged to the size of a large orange by tumour tissue) weighed 26 oz. and the right one (normal size) 9 gr.

I sent the specimen to Sir John Bland-Sutton, F.R.C.S., of the Middlesex Hospital, who kindly examined it, and reported that it was carcinoma.

The bitch was very bright and lively during her convalescence in hospital, and was returned home on the 22nd. Whether she had another growth or not somewhere we never discovered, but after she had been home a week she was taken suddenly ill with sickness and dysentery, and died within twelve hours.

Mr. Deville, M.R.C.V.S., who was called to attend her, wrote as follows: "You will be surprised to hear that General H. has lost his little bitch. I feel very sorry, as she came out of the operation so well. I was called to see her on Thursday afternoon, when I found her in a very weak state. She was very distended in the abdomen (gas) with fœtid breath. On Friday night I was called out to see her, and I found her in a comatose state and she remained in that condition until death took place 10 a.m. Tuesday. She vomited a good deal, and I gave her Parke-Davis elixir taka-diastase, which had the desired effect, brandy and digitalis; in fact she was in such a state I could do very little."

Unluckily we were unable to obtain permission to make a *post-mortem* examination.

Case 3.—The patient was a half-bred Persian cat, said by the owner to be at least 15 years old, and attention was drawn to its mouth by the fact that the animal was continually stroking the right side with its paw. Examination revealed a loose tooth, the first premolar, which was extracted without difficulty, and it was noticed that the buccal mucous membrane was swollen and ulcerated. The condition of the animal became worse, there was evident soreness when attempting to take food, and marked emaciation.

Within six weeks of the time when the growth was first noticed it had become as large as a Barcelona nut, and was very fœtid, the surface being ulcerated. The animal was destroyed with chloroform, the tumour proving to be a carcinoma.

ŒDEMA OF THE HEAD IN A DOG DUE TO SWALLOWING A FOREIGN BODY.

By M. GAUCET.
Brussels.

A COLLIE DOG suddenly developed œdema of the head, especially round the eyes, which were retracted in their cavities. The owner thought the dog had injured its head by falling. This opinion was contradicted by the dog coughing much, and showing an inclination to vomit during the examination. Gaucet at first thought there was a mechanical obstruction in the gullet, but nothing could be found there. Then urticaria, in which there is often swelled head, came to mind, but the swelling here was compact, and diffusely spread over the whole head. Doubt was soon set at rest by an emetic, causing the evacuation of a child's torn india-rubber ball, whereupon the coughing and vomiting ceased, and in a few days the œdematous swelling disappeared. The foreign body had been fixed in the anterior part of the intrathoracic œsophagus, and had there exercised strong pressure on both jugular veins, so that stoppage of blood occurred in the region drained by the head veins. Dilatation of the whole of the capillaries of the part, and a sudden serous transudation into the subcutis, the papillary bodies and the corium of the head had arisen.—*Deutsche tierärzt. Woch.*

ANIMALS (ANÆSTHETICS).

A Bill to make Further Provision for the Protection of Animals from Cruelty.

(*Presented by Mr. Walter Guinness, supported by Dr. Addison, Sir Frederick Banbury, Lord Henry Cavendish-Bentinck, Mr. Butcher, Mr. Courthope, Mr. Greene, Colonel Lockwood, Mr. Mills, Sir Charles Rose, and Mr. Snowden.*)

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

Offences.

1.—(1) If any person shall subject or cause or procure, or being the owner permit to be subjected an animal to an operation contrary to the regulations contained in this section, he shall be guilty of an offence under this Act.

(2) (*a*) A horse shall not be subjected to any operation specified in the First Schedule to this Act, and a dog shall not be subjected to any operation specified in the Second Schedule to this Act, unless the animal during the whole of the operation is under the influence of some general anæsthetic of sufficient power to prevent the animal feeling pain.

(*b*) A horse two years old and over shall not be subjected to the operation of castration unless during the whole of the operation he is under the influence of some general anæsthetic of sufficient power to prevent him from feeling pain.

(*c*) A horse shall not be subjected to any operation specified in the Third Schedule to this Act unless during the whole of the operation it is under the influence of some general anæsthetic or some local anæsthetic being, in either case, of sufficient power to prevent it feeling pain.

Penalties and Appeals.

2.—(1) Any person who is guilty of an offence under this Act shall be liable on summary conviction in respect of the first offence to a fine not exceeding five pounds, and in respect of any second or subsequent offence to a fine not exceeding twenty-five pounds, or alternately, or in addition thereto, to be imprisoned with or without hard labour for any term not exceeding three months.

(2) An appeal shall lie from any conviction or order by a court of summary jurisdiction under this Act to quarter sessions.

Powers of Board of Agriculture and Fisheries.

3.—(1) The Board of Agriculture and Fisheries may, by order made subject to the provisions of this section, add any other

operation to the operations specified in any schedule to this Act, and any operation so added shall be deemed to be an operation specified in that schedule, and the Board of Agriculture and Fisheries may also by order made as aforesaid extend any provision of this Act to any domestic animal to which it does not at the time apply, with such modifications or additions as may appear to that Board to be necessary.

(2) The draft of any such order shall be published for a period of two months before the order is made, and the Board of Agriculture and Fisheries during that period shall receive and consider any representations made to them with respect to the order by any persons appearing to them to be interested in the subject of the order.

(3) The order, when made, shall forthwith be laid before Parliament, and shall not take effect until it has so lain for thirty days before each House of Parliament, being days upon which that House has sat, and if a resolution is passed by either House before the expiration of such days declaring that the order be annulled, the order shall not take effect, but if no such resolution is passed the order shall take effect on such day after the expiration of the last day on which any such resolution might have been passed as the Board of Agriculture and Fisheries may appoint.

DEFINITIONS.

4.—In this Act, except the context otherwise requires, the expression "dog" includes any bitch, sapling, or puppy; "general anæsthetic" shall include chloral hydrate, and in the case of a dog morphine.

SHORT TITLE.

5.—This Act may be cited as the Animals (Anæsthetics) Act, 1913.

SCHEDULES.

First Schedule.

Radical operation for quittor.
Line firing.
Operation for stripping the sole.
Radical operation for poll evil.
Radical operation for fistulous withers.

Second Schedule.

Castration.
Ovariotomy.

Third Schedule.

Neurectomy or unnerving.
Enucleation of the eyeball.
Trephining.

Review.

A System of Veterinary Medicine. By various writers, to be complete in two volumes. Edited by E. Wallis Hoare, F.R.C.V.S., Lecturer in Veterinary Hygiene, University College, Cork. Vol. i, pp. xvi × 1350. Price £1 1s. net. London: Messrs. Baillière, Tindall and Cox. 1913.

Mr. Wallis Hoare undertook a big task when he decided to edit a system of veterinary medicine in two volumes, of which the first volume is now ready. The list of collaborators is in itself a guarantee for the excellence and reliability of the matter contained. As the author, or rather editor, says in his preface, "No individual, even though he possessed the widest experience of diseases in animals, and had unlimited time at his disposal, could unaided, either compile or write a work on veterinary medicine so as to do anything like justice to the subject." Consequently Mr. Hoare has obtained the assistance of British veterinarians at home and in the colonies and India to write up fully the various diseases, and therefore it may be taken for granted that almost every chapter has been written by an expert in the subject allotted to him.

The work treats of diseases of all the domesticated animals and of birds and fish, and the first volume is devoted to the microbial diseases.

The work is too large to permit of our reviewing it in detail, and in such a work there must of necessity be some views and conclusions with which the reader will disagree. However that may be, we congratulate the editor on his first volume, which will undoubtedly rank as a classical work for some time to come.

We unhesitatingly recommend both students and practitioners to obtain a copy. The price, *viz.*, one guinea per volume, is ridiculously small compared with the enormous amount of really up-to-date information it contains.

The work of the publishers is carried out in their well-known good style.

Sektionstechnik der Haustiere. (*Post-mortem* technique of the Domesticated Animals.) By Dr. Max Schmey, Veterinary-Surgeon at the Depôts of the City of Berlin Destructor School.

This German publication by the firm of Ferdinand Enke, of Stuttgart, consists of 212 pages of letterpress and 58 illustrations in the text. It is a manual of instruction for veterinary surgeons and students, containing full information as to how to conduct *post-mortems* in a scientific and methodical manner in order that all conditions, whether healthy or diseased, may be carefully noted.

The book is divided into three sections. The first deals with the instruments and general rules for conducting autopsies; the second treats of the methods of opening the cavities and

examining the organs and tissues of the cadaver; the third enumerates and shortly describes the various diseased conditions likely to be encountered on making *post-mortems*.

There is an illustration of a double saw (among those of various handy *post-mortem* instruments), which is exceptionally useful and time-saving when opening the spinal canal, a part of the animal organism which is frequently given the go-by, or imperfectly examined, because of the difficulty in getting at the cord. The author disapproves of putting iodoform collodion on personal wounds accidentally received when conducting autopsies, because the inflammatory processes of an infected wound may easily develop under the collodion. He advises thorough cleansing of the wound with soap and water and afterwards putting on a few drops of alcohol and ether or acetic acid, then a light bandage and india-rubber finger-stall, and only thus can further *post-mortem* procedure be safely conducted.

In the third section there are some very useful tables giving the dimensions and weights of the healthy organs of the different domesticated animals.

Where *post-mortem* conditions are important as evidence at law the carrying out of autopsies as indicated in this book ought to safeguard anything of importance being missed, and enable exact conditions to be concisely and correctly given by the professional witness.

The work is necessarily of the cyclopædiac type, and a full revelation of all the good things in it cannot be referred to in a short review. Suffice it to write that we have seen nothing like it in the English language, and it would very well bear translating into the Anglo-Saxon tongue for the benefit of veterinary surgeons, meat inspectors, medical officers of health, and veterinary students. G. M.

LITERARY NOTE.

MESSRS. BAILLIERE, TINDALL AND COX announce the publication of the second edition of Castellani and Chalmers's "Manual of Tropical Medicine." Although less than three years have elapsed since the first edition of this work was issued it has won for itself universal recognition, and has become indispensable to all who are interested in the study of Tropical Medicine. The work has been subjected to a thorough revision from cover to cover, and includes all the most recent researches on the subject. Many of the chapters have been entirely re-written, and a number of new ones added to the extent of about 500 pages. There are 250 new illustrations, but notwithstanding its enlarged size the price will remain as heretofore.

Translation.

HÆMOPHILIA, HÆMORRHAPHILIA (BLOOD DISEASE).

By Dr. FRIEDRICH SCHICK,
of Reichenau.

In a long article Schick discusses the views of authors on the causes of hæmophilia and gives a description of a case of hæmophilia in a seven-year-old greyhound, in which, at the wish of the lady owner, a wound was made at the inner side of the left stifle joint for the removal of a foreign body. Already, when originally injured, the dog had bled so profusely that the attending veterinary surgeon had encountered great difficulty in checking the severe hæmorrhage. Schick only dilated the wound a little and removed the foreign body. Bleeding then set in so severely that he tried in vain to arrest it from 9 o'clock in the morning until 6 o'clock at night. In the meantime anæmic symptoms and heart weakness set in and only then the hæmorrhage came to a standstill. By means of a camphor injection the general condition was again improved, but on the next day bleeding occurred and lasted several hours, but it was checked; nevertheless, it recurred in the evening and again the next morning. In spite of this the animal recovered and the wound healed. —*Berliner tierärzt. Woch.*

Letters and Communications, &c.

Mr. Payne; Professor Liautard; Dr. A. Hughes; Mr. C. J. Dixson; Mr. W. M. Scott; Mr. G. Mayall; Capt. Deacon; Mr. A. E. Willett; Mr. T. B. Goodall; Mr. J. F. D. Tutt; Capt. Pallin; Mr. Mitter; Professor Sisson; Professor Craig; Dr. Burton Rogers; Professor Law; Mr. Bevan; Mr. Haskell.

Books and Periodicals, &c., Received.

The American Veterinary Review; Journal of the Royal Army Medical Corps; Recueil de Médecine Vétérinaire; L'Hygiène de la Viande et du Lait; Revue Générale de Médecine Vétérinaire; Der Tierarzt; Zeitschrift für Veterinärkunde; Berliner tierärztliche Wochenschrift; Osterreichische Wochenschrift für Tierheilkunde; La Clinica Veterinaria; Revista de Medicina Veterinaria; Board of Agriculture and Fisheries; Department of Agriculture and Technical Instruction for Ireland; Kennel Gazette; Agricultural Journals for the Union of South Africa and for Rhodesia; American Journal of Veterinary Medicine.

Note.—All communications should be addressed to 8, Henrietta Street, Covent Garden, London, W.C. Telephone, 4646 Gerrard. Telegrams, "Baillière, London."

Letters for the Journal, literary contributions, reports, notices, books for review, exchanges, new instruments or materials, and all matter for publication (except advertisements) should be addressed to the Editors.

Manuscript—preferably type-written—should be on one side only of paper, marked with full name of author.

Illustrations for reproduction should be in good black or dark brown on white paper or card.

Advertisements and all business matters relating to the Journal should be addressed to the publishers, Messrs. Baillière, Tindall and Cox.